LAST NAME (Print): ______________________ FIRST: ______________________

Statistics 111 **Quiz 15**

1. ________ Let 1, 2, 3 be a random sample from a Poisson(λ) distribution. Find the MLE of λ.

2. ________ Let 0.25, 0.5, and 0.75 be a random sample from a Beta$(\alpha, 1)$. Find the MLE of α.

3. Let X_i be normally distributed with mean i and standard deviation i for $i = 1, 2, 3$. Suppose the covariance between X_1 and X_2 is 2, and X_3 is independent of both. Let $Y = X_1 + 2X_2 - 3X_3$.

   ______________________ What is the name for the distribution of Y?

   ________ What is the mean of that distribution?

   ________ What is the standard deviation of that distribution?

   ________ What is the correlation between X_1 and X_2?

   ________ What is the correlation between X_1 and X_3?

   Why is $\operatorname{Var}[X_1 + X_2] > \operatorname{Var}[X_1 - X_2]$?

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4. List only the true statements. (3 points) ______________________

   A. The pivot bootstrap is more accurate than the percentile bootstrap.

   B. Asymptotically, the bootstrap is never worse than the CLT.

   C. Brad Efron invented the bootstrap.